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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/725,622 | 12/02/2003 | Stefan Assmann | P03,0479 | 4948 |

7590 06/03/2008

SCHIFF HARDIN & WAITE
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| EXAMINER | |
|---|---|
| MEHTA, PARIKHA SOLANKI | |
| ART UNIT | PAPER NUMBER |
| 3737 | |

| MAIL DATE | DELIVERY MODE |
|---|---|
| 06/03/2008 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/725,622 | ASSMANN ET AL. | |
| | Examiner | Art Unit | |
| | PARIKHA S. MEHTA | 3737 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *01 May 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1,2 and 4-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *2/19/08*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1 May 2008 has been entered.

### *Response to Arguments*

2. Applicant's arguments with respect to claims 1, 2 and 4-12 have been considered but are moot in view of the new ground(s) of rejection.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1, 2 and 4-12 rejected under 35 U.S.C. 103(a) as being unpatentable over NessAiver (US Patent No. 5,329,925), hereinafter NessAiver ('925), previously made of record, in view of Applicant's admitted prior art.

**Regarding claims 1, 2, 5, 6, 11 and 12**, NessAiver ('925) teaches a method, apparatus and computer-readable medium for blood flow measurement during the cardiac cycle, including means and steps for acquiring and displaying an overview image (col. 9 lines 59-60), quasi-simultaneously acquiring data for reference and motion sensitized images wherein non-stationary tissue is shown in successive, different positions, (col. 8 lines 31-34) , and generating and displaying the reference and motion sensitized image series in an integrated manner on a video monitor (col. 6 line 53 – col. 7 line 5). The reference and motion sensitized image data sets constitute anatomical and speed-resolved image data, respectively, as claimed in the instant application. The video means and steps of NessAiver ('925) constitute means and steps for displaying the image series as a movie as claimed in the instant application. As NessAiver ('925) correlates the motion-sensitized and reference image series without the use of any intervening image series, it can be said that the correlation ("integration") is direct as claimed. Furthermore, NessAiver ('925) states that all images are separated into frames, a term which is interpreted to mean an image selected from a series of images at a particular point in time, and thus the sorting and correlating by frame constitutes integration via time correspondence only as is currently claimed (col. 6 lines 57-62).

While NessAiver ('925) does generally teach of segmenting the data (col. 5 lines 5-17), NessAiver ('925) does not expressly teach segmentation of the images in images space during or immediately following acquisition of the image data. However, Applicant admits that the presently claimed invention employs nothing more than commonly known image segmentation algorithms to achieve this limitation (Specification, p. 4, "Common segmenting algorithms are known."). Accordingly, one of ordinary skill in the art at the time of invention would have found it obvious to achieve the present invention by merely modifying NessAiver ('925) to employ known image-space segmentation algorithms, as such a modification constitutes nothing more than the mere combination of known prior art elements to yield predictable results, which has previously been held as unpatentable (see for precedent *KSR International Co. v. Teleflex Inc*, 82 USPQ2d 1385).

Further regarding the timing of the segmentation step, Applicant has not disclosed any novel steps for the segmentation algorithm that render it specifically suited for execution during data acquisition—as previously discussed for claim 1, it appears that Applicant is merely using known image processing methods. As such, it can be said that the end result of performing the segmentation during,

immediately after, or even some time after acquisition would still be the same, i.e. that the output of the segmentation algorithm would be the same at any of those times, and as such the time of execution of the segmentation step would be nothing more than an obvious matter of design choice to one of reasonable skill in the art.

**Regarding claim 4**, NessAiver ('925) states that the motion sensitized/speed-resolved images may be color coded (col. 8 lines 15-20).

**Regarding claim 7**, the method of NessAiver ('925) would inherently involve the operator visually observing the cine series on the display screen, as the step of displaying the series is not useful nor practical without the step of observing said series. The act of observing subsequently includes manual identification of the moving region on the display, as the operator would be able to see which regions of tissue are in motion and which regions are stationary by watching the series.

**Regarding claim 8**, the heart, as imaged by NessAiver ('925) can be reasonably interpreted to constitute a plurality of moving regions as claimed in the instant application.

**Regarding claim 9**, NessAiver ('025) teaches acquiring image data over a cardiac cycle (col. 8 lines 31-34).

**Regarding claim 10**, NessAiver ('925) teaches acquiring at least 20 images per cardiac cycle (col. 5 lines 5-19).

***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Helterbrand (US Patent No. 6,021,213) discloses a related method of automatic segmentation of MR image data in image space.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PARIKHA S. MEHTA whose telephone number is (571)272-3248. The examiner can normally be reached on M-F, 8 - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571.272.4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ruth S. Smith/
Primary Examiner, Art Unit 3737

/Parikha S Mehta/
Examiner, Art Unit 3737